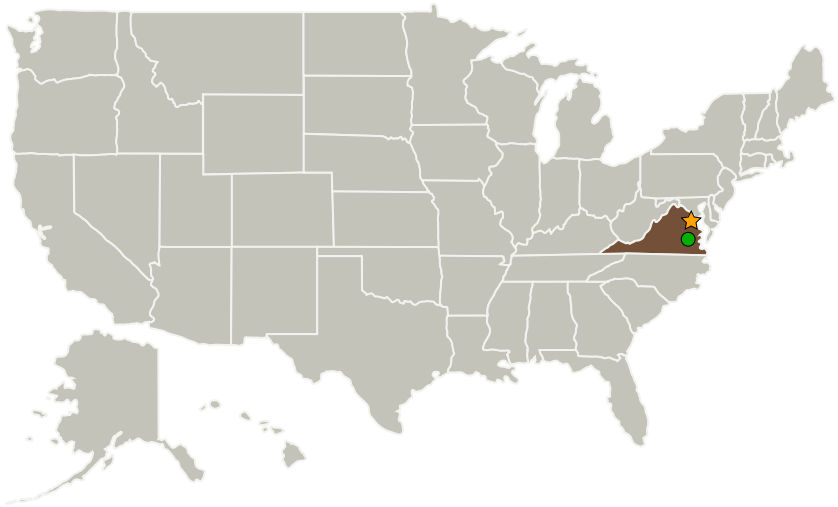
High-Speed On-Board Data Processing for Science Instruments (HOPS)

Completed Technology Project (2012 - 2015)

Project Introduction

• Enable high data volume missions, such as ASCENDS, ACE, and 3D-Winds, by reducing downlink data volume with onboard real time data processing • Reduce future mission development cost by maximizing the reuse of hardware and VHDL modules • Design and build a scalable and reconfigurable platform suitable for real time execution of computing intensive and high throughput rate algorithms • Implement real-time CO2 retrieval (applicable for ASCENDS) • Implement data reduction algorithms (applicable for ASCENDS, ACE, and 3D-Winds)

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★NASA Headquarters(HQ)	Lead Organization	NASA Center	Washington, District of Columbia
●Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations
Virginia

ALHAT - ETD Autonomous Landing & Hazard Avoidance Tech Earth Science Technology Office

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	2
Target Destination	3

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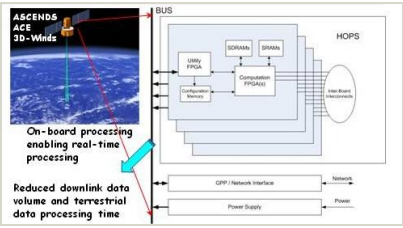
Images



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Project Image High-Speed On-Board Data Processing for Science Instruments (HOPS)
(https://techport.nasa.gov/image/2441)

91-1373479894122.png
ALHAT - ETD Autonomous Landing & Hazard Avoidance Tech Earth Science Technology Office
(https://techport.nasa.gov/image/5099)

Organizational Responsibility

Responsible Mission Directorate:
Science Mission Directorate (SMD)

Lead Center / Facility:
NASA Headquarters (HQ)

Responsible Program:
Earth Science

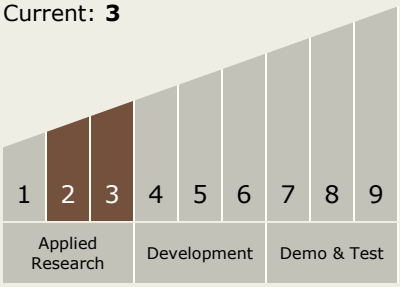
Project Management

Program Director:
George J Komar

Principal Investigator:
Jeffrey Y Beyon

Technology Maturity (TRL)

Start: **2**
Current: **3**



Technology Areas

Primary:

Continued on following page.

High-Speed On-Board Data Processing for Science Instruments (HOPS)

Completed Technology Project (2012 - 2015)

Technology Areas *(cont.)*

- TX02 Flight Computing and Avionics
  - TX02.1 Avionics Component Technologies
    - TX02.1.3 High Performance Processors

Target Destination

Earth